



# Cotton Comments

OSU Southwest Oklahoma Research and Extension Center  
Altus, OK



June 16, 2017

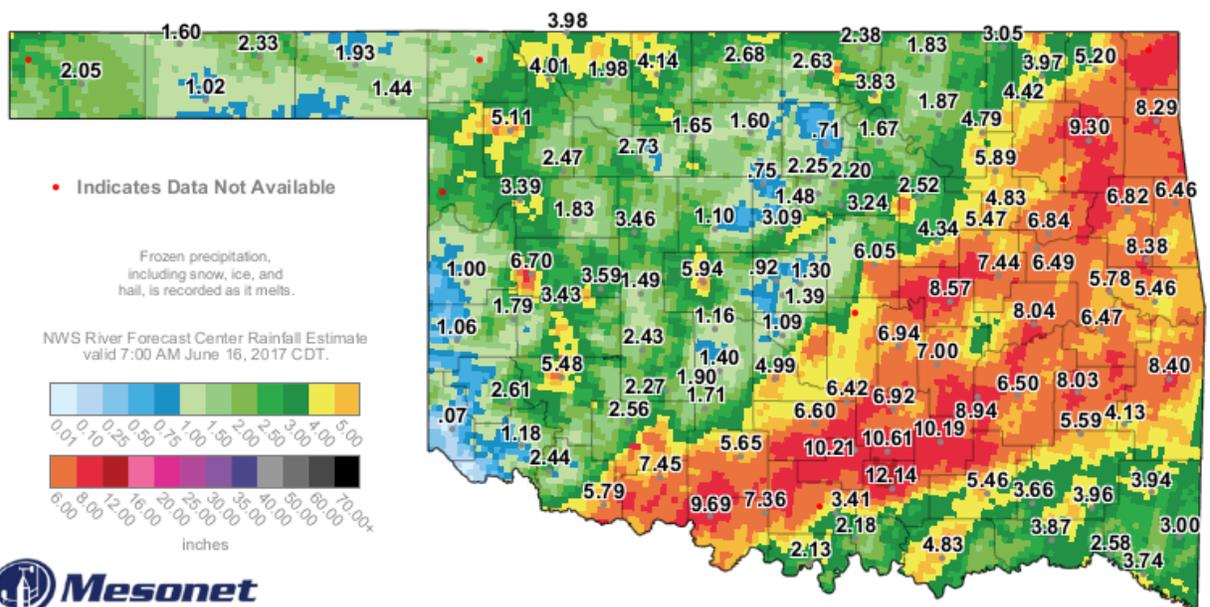
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## Current Situation

The Oklahoma cotton crop situation at this time is a very mixed bag. A lot of irrigated cotton was planted during the second week of May. As of this writing, cotton producers are still busy finishing up planting mostly dryland fields, working on weed management and watching for square formation. Some of our irrigated acres had to be replanted due to high intensity rainfall/thunderstorm events in the second half of May and on into early June.

Many producers also have noted that small seeded varieties have many times exhibited poor seedling vigor and experienced significant difficulty with respect to stand establishment. A quick glance at some of the seed counts indicated that very small seed were noted (up to 6,400 seed/lb) for some varieties. Some of these varieties have performed very well in variety trials and in producer fields last year, but this year challenging environmental/planting conditions impacted the germination and early season vigor of some of these small seeded types. Many early planted irrigated acres had to be replanted. Some dryland producers whose fields have not received much rainfall have been boxed in by poor emergence of these varieties. Some growers have indicated they needed to replant but unfortunately don't have the moisture to do so. Therefore, some may be stuck with less than desirable stands in 2017. However, there still are a lot of earlier planted fields that are nearing the squaring stage at this time and should be on track for blooms in early July.

The Mesonet 30-Day Rainfall Accumulation graphic below illustrates the poor rainfall that has been obtained in the far southwestern corner of the state. This low rainfall situation has impacted cotton acreage southwestern Jackson County, and several counties bordering or near the 100<sup>th</sup> meridian with Texas, including Harmon, Greer, Beckham and Roger Mills. Other, more eastern areas are in much better shape.



### 30-Day Rainfall Accumulation (inches)

8:20 AM June 16, 2017 CDT  
Created 8:25:43 AM June 16, 2017 CDT. © Copyright 2017

Planted acreage will be very large for the state, and we may possibly have the most cotton acres since the early 1980s - at perhaps 500,000 or so. We have producers who are new to cotton and some who have planted cotton for the first time in many years. Boll weevil eradication across most of the U.S. Cotton Belt, and in the state has been very successful and is a major contributing factor to the continued profitability of cotton production. It has been a long, difficult, and challenging task to rid our state and most of the Cotton Belt of this invasive species that for such a long time negatively impacted our production. We all need to do our part in keeping this pest from resurfacing in our state. Some new cotton producers may be unaware of this ongoing program. It is important for producers who are not familiar with this program to contact the Oklahoma Boll Weevil Organization to make sure their new fields are properly identified and trapped. For more on this see the section below.

### Weed Control

Many producers are making over-the-top applications of various herbicides. High wind has been a challenge for many. Producers should seriously consider any potential off-target movement of their herbicides. This is important, especially when considering the new auxin herbicides recently labeled. The new labels have extensive requirements to remain legal. For an extensive review of this and information on herbicide selection, readers are encouraged to see the information provided in the May 11 edition of the newsletter. [Click here for Cotton Comments Volume 7 edition 4 May 11, 2017](#)

## Plant Growth Regulators

With the vigorous growth and excellent cotton in some areas, it will be important to be on point concerning the use of plant growth regulators. Mepiquat-based (such as Pix Plus, Mepex, Mepichlor, Mepiquat Chloride, Mepex GinOut, Stance, and others) plant growth regulators (PGRs) have been around for many years. Companies are constantly enhancing formulations, but the main active ingredient in nearly all of these products is mepiquat chloride.

Mepiquat chloride (MC) reduces production of gibberellic acid in plant cells that in turn reduces cell expansion, ultimately resulting in shorter internode length. MC will not help the plants compensate for earlier weather or disease damage. It does not increase growth rate, it essentially reduces plant size by reducing cellular expansion. It may, under good growing conditions, increase fruit retention, control growth and promote earliness. MC should not be applied if crop is under any stresses including moisture; weather; severe spider mite, insect, or nematode damage; disease stress; herbicide injury including 2,4-D damage due to drift or from tank contamination; or fertility stress. Results from replicated testing indicates that a 5 to 20% reduction in plant height (compared to the control) can be obtained from 16 oz of 4.2% a.i. MC material applied in up to 4 sequential 4-oz/acre applications starting at match head square (MHS) and ending at early bloom. It is generally possible to reduce about one node from the growth of the main stem, which can result in about 3-5 days earlier cutout. **Low rate multiple applications beginning at MHS have generally provided more growth control than higher rate applications made at first bloom or later.** Results have shown that statistically significant increases in yields are generally not obtained, but excellent growth control is provided. Many times we don't see a lot of differences in performance of these products in terms of growth control.

### *Available Products*

Mepiquat based products have been around for many years. Several PGRs based on the same active ingredient are now available. Refer to the product labels or contact Extension personnel or company representatives or to ensure you understand the correct use of these products.

Mepex, Mepichlor, Mepiquat Chloride and other generics  
4.2% active ingredient (a.i.)/gallon or 0.35 lb/gallon a.i.

### Mepex Gin Out

4.2% a.i./gallon or 0.35 lb/gallon a.i. with 0.0025% Kinetin (a cytokinin).

Cytokinins are plant hormones that promote cell division and growth and delay the senescence of leaves. This product has use guidelines similar to other MC materials.

### Pentia

This product contains mepiquat pentaborate, which has a different molecular structure than MC. 9.6% a.i./gallon or 0.82 lb/gallon a.i. Typically Pentia has similar use rates when compared to 4.2% MC products.

## Stance

Bayer CropScience's Stance product is an MC based PGR. It is a 4 to 1 ratio of MC and cyclanilide (0.736 lbs/gallon MC plus 0.184 lbs/gallon cyclanilide). Cyclanilide is an auxin synthesis and transport inhibitor. Auxins are generally referred to as compounds which have the capacity to induce cell elongation. The inhibition of auxins could reduce cell elongation and inhibit growth. Producers should be aware that the mepiquat chloride concentration in Stance is about twice as high as most of the other materials we have become accustomed to applying, THEREFORE THERE IS A CORRESPONDING REDUCED RATE.

### *What to Expect From Application*

Consistent yield increases have not been observed from any of the MC materials we have investigated. A good boll load will normally help control plant growth. Fields with poor early-season fruit retention, excellent soil moisture, and high nitrogen fertility status may be candidates for poor vegetative/fruitlet balance and should be watched carefully. **Growers who have planted varieties with vigorous growth potential and have fields with excellent growing conditions should consider PGR application when growth stage warrants.** For brush roll header stripper harvest, 28-32 inch tall plants optimize stripper-harvesting efficiency. If possible, target a maximum plant size of about 32 inches for varieties under high input irrigation (sub-surface drip or high capacity pivots). If plants get larger than 36 inches tall, harvest efficiency and productivity drop significantly. For spindle picker harvesters, larger plant size for high yielding cotton is not as much of a harvesting consideration.

### *Application Rates and Production Environment*

Determination of application rates is generally more "art" than "science" for these products. Applications should begin when 50% of the plants have one or more matchhead squares (see specific product label for more information). It is best to make prebloom applications if conditions favor excessive growth for an extended time period. **Many varieties are being sold that tend to have aggressive growth potential. Growth control for these types will be maximized by timely MC applications beginning at the prebloom stage.** Also, monitoring high growth potential varieties and fruit retention will be important. If a high growth potential variety has been planted and has encountered low fruit retention, then the MC rate should be increased, especially under high water, fertility, and good growth conditions. **Some newer varieties may need aggressive management under high irrigation capacity and/or if heavy rainfall conditions are encountered. The situation that has arisen due to the release rate of new genetics is challenging – there are numerous new varieties being sold. Visit with your seed company representative to determine which new varieties should be watched closely for MC needs under field-specific conditions. They have the most experience with the newer varieties, especially under late planting conditions experienced in some areas.** Sequential applications can be adjusted to meet subsequent crop conditions and growth potential.

RB

## Early Season Pests – Thrips and Fleahoppers

This year the crop is has wide ranging development – from squaring to just emerging. Early planted fields generally have received a thrips control sprays where later fields thrips have not been detected. Fields just emerging with adequate moisture should outgrow thrips and control sprays should not be needed. WEEKLY scouting needs to be established as soon the plants emerge. Conversations with chemical distributors and consultants have indicated that unusual pests have occurred ranging from pill bugs to aphids. Control measures were initiated in some situations. Thanks to consultants Jerry Stoll and Andy Harrison for notifying this office. As the crop reaches the squaring stage, the next major pest to be concerned about is the cotton fleahopper.



**Cotton Fleahopper**

Since the introduction of Bt cotton and boll weevil eradication the cotton fleahopper has become the number one pest in Oklahoma. The cotton fleahopper usually feeds on young succulent weeds such as croton, goatweed, and horsenettle in early spring. These weeds also provide an overwintering site for eggs. As the weeds mature, adults migrate to cotton which is beginning to develop pinhead squares. Fleahoppers insert their sucking mouthparts into the small squares. These damaged squares later turn brown and are shed from the plant.



Photos courtesy Dr. David Kerns, Texas A&M AgriLife Extension Service.



Photo courtesy of Shane Osborne



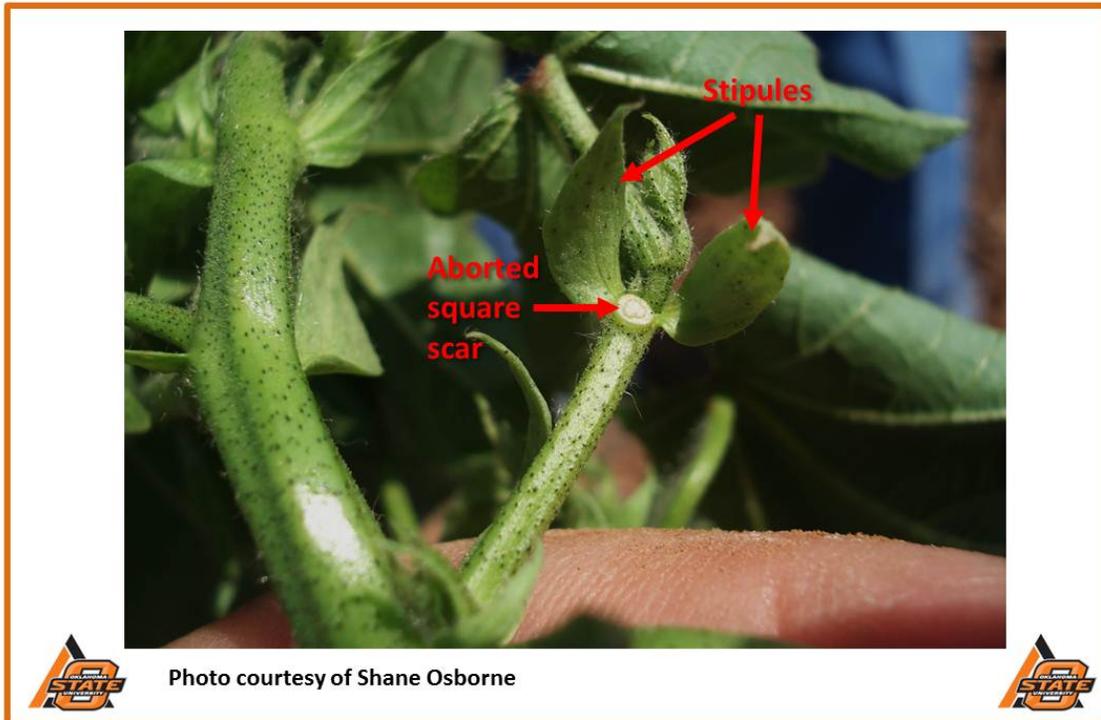


Photo courtesy of Shane Osborne

In addition to squares, the cotton fleahopper will also feed on other parts of the plant. If heavy infestations exist, new growth will be abnormal and whip-like in appearance. All stages of the life cycle will feed on the plant as long as it remains succulent. As cotton matures, these insects migrate to weeds or other host crops. In southwest Oklahoma, the highest population typically occurs in cotton in early August, although this is not generally a problem that late in the season.

The life cycle begins with the female placing her eggs into the plant tissue by means of an ovipositor. The eggs hatch in approximately 1 week, and small nymphs (which are similar to the adults, except for being wingless) undergo five molts before reaching the adult stage. Egg to adult takes approximately 3 weeks with six to eight generations per year. The cotton fleahopper adults are approximately one-eighth inch long, winged, and pale green in color. They are covered with small black spots and have four characteristic black spots near the wing tip. The nymphs are about one-twenty-fifth of an inch long, wingless, and pale green in color.

Numerous chemicals are registered for control of fleahoppers. In an ideal situation, fleahoppers should be controlled only when thresholds are exceeded in order to preserve beneficial insects since these will help control later occurring pests. Unless the cotton is extremely late, after July 25, control of cotton fleahoppers generally is not economical.

Spray decisions should be based on the squaring rate and level of cotton fleahopper infestation. Usually when cotton fleahoppers (adults and nymphs) reach or exceed 30 per 100 terminals and squaring rates begin to decline, treatment is justified. However, if

cotton fleahopper numbers build slowly, fields can tolerate higher numbers before a reduction in squaring rate will occur. In most cases, fields will no longer be vulnerable to cotton fleahoppers once they begin to bloom.

Chemical control of cotton fleahoppers is a fairly easy to accomplish and several products provide good control. However certain chemicals may not be advantageous. Care must be taken to preserve beneficial arthropods that will help in controlling cotton aphids and spider mites. Flaring of these pests can be avoided by using products that are “softer” on beneficials.

The list of chemicals that control cotton fleahoppers includes Orthene (acephate), Bidrin, Intruder, Centric, Carbine, Lorsban, Steward, Lannate, Dimethoate, and various pyrethroids. Vydate has historically been a product of choice. However, due to manufacturing issues, it is not available at this time. Bidrin has a label allowing its use in cotton from emergence to prebloom, but you can't apply more than 3.2 oz/ac during this period. According to research conducted by Texas A&M AgriLife Extension at Lubbock, products least likely to flare secondary pests include Carbine, Bidrin, Steward and low rates of Orthene (acephate). Other insecticides such as Intruder and Centric won't flare aphids and are probably fine to use as well, but these have been implicated in flaring mites. Pyrethroids are typically **not** recommended for fleahopper control because they tend to be very disruptive to beneficials and many times flare aphids. Pyrethroids can also exacerbate bollworm challenges in non-Bt cotton.

## **EPA Bifenthrin Review**

Recently, we were alerted by John Sandbakken with the National Sunflower Association concerning an EPA review of bifenthrin insecticide. He stated:

*July 7<sup>th</sup>, 2017 is the new deadline for making comments to EPA on the benefits that ALL pyrethroid & bifenthrin insecticides bring to your operation. To make your efforts easier, please go to: [www.defendbifenthrin.com](http://www.defendbifenthrin.com) and click on the tab for growers, retailers, CCA's, Consultants' and more to either use the pre-formatted letter or list your own experiences with pyrethroid benefits for responsible pest control. Honest, individual comments are the best. The whole process will take no longer than 5 minutes. Some benefits you probably have seen are listed below:*

- 1) Pyrethroids are highly effective and cost efficient*
- 2) Bifenthrin is essential for integrated pest management*
- 3) Flexible applications such as in-furrow, foliar and pre-emerge*
- 4) Broad-spectrum insect control*
- 5) Labeled for multiple crops and uses*
- 6) Low use rates*
- 7) Minimal applicator and handler toxicity concerns*
- 8) Growers rotate bifenthrin with other insecticides to prevent insect resistance*

If you have questions concerning insect control issues, please call the OSU Southwest Research and Extension Center or contact your local OSU County Extension Educator.

**JG**

Field Surveys – Week Ending June 16, 2017

Location	Date of planting	Plant Stage	Insects	Comments
Blaine Irrigated Cotton Inc Enhanced Variety - Schantz	May 26	4 <sup>th</sup> True leaf	None detected	Good
Blaine Irrigated Dow Innovation - Schantz	May 26	3 <sup>rd</sup> True leaf	None detected	Good
Caddo Irrigated OVT – OSU Caddo Research Station	May 30	2 <sup>nd</sup> True leaf	None detected	Good
Jackson Irrigated DT RACE – Darby	May 15	1 <sup>st</sup> True leaf	<1 Thrips/plant	Good
Jackson Irrigated Bayer CropScience APT	May 24	3 <sup>rd</sup> True leaf	None detected	Good
Jackson Irrigated OVT – OSU SWREC	May 24	4 <sup>th</sup> True leaf	None detected	Good
Jackson Dryland DT RACE - Abernathy	June 7	Emerging	--	--
Jackson Irrigated Cotton Inc Enhanced Variety - Abernathy	May 9	Pinhead – matchhead	None detected	Good
Jackson Irrigated Innovation-Abernathy	May 10	Pinhead	None detected	Good
Jackson Irrigated PhytoGen Innovation Trial – OSU SWREC	May 24	4 <sup>th</sup> True leaf	None detected	Good
Jackson Irrigated Entomology Trials – OSU SWREC	May 8	4 <sup>th</sup> True leaf	None detected	Good
Tillman Irrigated DT RACE – Nichols	May 12	Pinhead	None detected	Good
Tillman Dryland OVT – OSU Tipton Valley Research Center	June 13	--	--	Just planted
Tillman Dryland DT RACE - White	June 12	--	--	Just planted

DT RACE – Dicamba Tolerant - Replicated Agronomic Cotton Evaluation Trial (Oklahoma Cooperative Extension)

OVT – Official Variety Trial (Oklahoma Agricultural Experiment Station, Altus, Tipton, Fort Cobb)

APT – Agronomic Performance Trial

## **Attention New Cotton Producers: Oklahoma Boll Weevil Eradication Organization Concerns for 2017 Season**

Eradication of the boll weevil across most of the U.S. Cotton Belt, and in the state has been very successful and is a major contributing factor to the continued profitability of cotton production. It has been a long, difficult, and challenging task to rid our state and most of the Cotton Belt of this invasive species that for such a long time negatively impacted our production. There is still a difficult fight with this insect pest in south Texas, and we all need to do our part in keeping this pest from resurfacing in our state. Some new cotton producers may be unaware of this ongoing program. John Henderson, Director of the Oklahoma Boll Weevil Organization, based at Altus, provided the information below.

*The Oklahoma Boll Weevil Eradication Organization (OBWEO) is preparing for the upcoming 2017 cotton season. It is our responsibility to ensure the continued success of this program. With all of the talk of a significant increase in cotton acres, there are some important issues with respect to OBWEO that you need to be aware of. If you have been growing cotton for the past 3-5 years, we know where those fields are located. However, if you are a new producer or have not grown cotton in the past several years, we need you to provide to us the legal descriptions of these new cotton fields.*

*There is a boll weevil eradication assessment for harvested cotton acres. This assessment will be determined in September of 2017. For reference purposes, this assessment was \$2.50 per harvested acre in 2016.*

*The trapping density this year is one trap per 320 acres. In areas where planted cotton acreage density is high, not all fields will actually have a trap near it. In other areas where individual fields may be more isolated, these fields will need to be trapped.*

*For the following counties including Tillman, Cotton, Comanche, Atoka, Bryan, and Stephens, please contact John Lamb at 580-335-7760 (office) or 580-305-1930 (cell).*

*For all other counties in the state of Oklahoma, contact John Henderson at 580-477-4287 (office) or 580-471-7962 (cell).*

*For any other questions contact Brenda Osborne at 580-471-7963 or Amanda Montgomery at 580-550-0050.*

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